GROUND WATER FORUM TELECONFERENCE
Thursday April 5, 2001

SPRING MEETING

The meeting agenda has been finalized and was attached to the agenda for the teleconference call. Vince Malott will send out the specific topics for the Monday afternoon and Tuesday morning sessions. There are still three vacancies for the 20 minute presentations on Thursday morning. Anyone wanting to give a presentation should notify Vince or Kathy Davies as soon as possible. So far Ruth Izraeli, Howard Orlean, and Gregg Lyssy have volunteered.

Vince Malott has made reservations on Monday night at the Fish Market for the group dinner. Along with notifying Diane Dopkin of hotel room reservations, Vince needs to know by the end of the month who plans on attending to ensure reservations.

ROTO-SONIC DRILLING REPORT

Luanne Vanderpool stated that she had been working on a site in Dayton, OH. It is over a buried valley aquifer with a fairly narrow glaciated bedrock zone that has been filled in with outwash and till. The original plan was to do shallow profiling with a Geoprobe and deeper aquifer sampling with a cone penetrometer (CPT) rig. The glacial outwash turned out to be very cobbly and the CPT could not be used. The rotosonic drilling rig, which is frequently employed in the area, was proposed as a substitute and accepted. Luanne said that most of the protocols she had seen for this rig indicated there may be a need for minimal amounts of water to be introduced to the borehole during the drilling. At this site the driller was using on the order of 100 gallons of water per 10 feet of advancement. Luanne talked with the local water authority environmental engineer about this, and he stated that this was the practice and that was also why they do not use sonic for vertical profiling. Luanne recommended that at the very least the driller keep track of water loss so that this could be taken into account during the purging stage for sampling. They drilled a separate hole and re-sampled. In the original hole where dilution would be a concern, they had low levels of vinyl chloride (VC) and TCE. While in the new hole with purge requirements, they did not detect TCE but had twice (8 μg/l) the results indicated for VC in the original hole.

Kay Wischkamper commented that Region 4 also uses roto-sonic drilling, and one of the problems is that they do not have a standard SOP for the method. Therefore, each plan is written on a site by site basis. They have a problem with well completion with these rigs since they can not let the wells sit for the amount of time they require for bentonite hydration because the rig can not pull off the hole and come back to it.

A question was asked about the speed of the drilling and Luanne responded that sonic drilling is a really fast technique and there was no problem there. Another person inquired about what the purpose of the water was? Luanne explained that the water is used as a lubricant and to help control the generation of heat. The technique generates a lot of heat since it uses vibration as well as turning to advance the rod and, in the absence of a core barrel, pushes all the cuttings to the side which in turn increases the friction.

Vince mentioned that in the one instance where he was involved with sonic drilling, water was used to try to keep the hole open and the rods free, and the driller still ended up leaving 3 strings of casing in the ground because of collapsing sands. Also he said that when they drilled through an organic layer, the sample had a cooked smell when it was brought up indicating a very hot sampling environment. So when volatiles are present, it would appear there is a choice between driving them off with the heat of the method or diluting them out with water to control the heat.

Bill Pedicino stated that Region 7 had used the method in Omaha and were satisfied. Also the cores obtained by the method were very good. Everyone agreed that the method produced excellent cores.

Kay, Bill, and Luanne volunteered to look into developing a GWF SOP for sonic drilling.

GUIDANCE FOR ASSESSING VAPOR INTRUSION TO INDOOR AIR: RCRA CORRECTIVE ACTION ENVIRONMENTAL INDICATOR (EI) DETERMINATION

There is a draft RCRA guidance document out for assessing vapor intrusion to indoor air. It includes some modeling and has a preference for some screening level modeling as an approach to assessing the potential for indoor air intrusion.

Henry Schuver stated that there were some 50 presentations on indoor air issues at the RCRA national meeting last summer. From this meeting OSW decided that it would be useful to create a guidance document on this issue to be used for the RCRA EI determinations. The presentations can be viewed athttp://clu-in.org/EIforum2000/. Henry said one of the presentations by a consulting group from Denver presented data gathered on indoor air at 24 homes. The indoor air was collected over 24 hours with Summa canisters. They chose to focus on 1,1-dichloroethene because it was the only chemical in the plume that would not also have a possible indoor source. They found a direct linear relationship between the concentrations found in the water and those in the houses. The correlation coefficient was 0.95. Depth to ground water at the site was 20-25 feet, and the houses did not have basements. The risk assessment on DCE alone placed the people in the homes at a 10^{-4} to 10^{-5} risk and did not address the risk of the other chlorinated solvents in the plume which would have raised it even more. At this time there are 27 homes and 5 apartment buildings that have had vapor removal systems installed.

In January 2001 there was a meeting in Washington of various stakeholders including industry and the states to discuss how to address this problem. The guidance document is an attempt to develop an approach that can be used across the country in different geologic settings. Henry stated that various states already have regulations on this issue (e.g., Massachusetts, Connecticut, and Michigan). In the guidance document they are trying to focus on the quality of the environment in the near surface soil gas.

Bill Pedicino stated that Region 7 has had instances when there were high levels of volatiles in the water and the Eddinger model predicts there will not be a risk in the basements. Bill then stated that since it is difficult to prove the source of chemicals measured in a basement, the alternative to using the model would be to drill a hole in the basement floor and sample the soil gas directly. This meets with owner resistance. Henry stated that this was a problem and the focus of OSW's efforts is to try to get the most accurate measure of the soil gas short of drilling in the structure. He also mentioned that the bottom of the structure generally will act as a barrier to soil gas diffusion, and hence the concentrations of chemicals at the soil/structure interface will probably be much higher than that found at the same depth in an open area. In addition, depending upon the type of soil, grab samples may or may not be representative of what is under the structure. He gave the example of a tight clay with macro fractures that may intersect some structures and not others. The concentrations of chemicals in the macro fractures are likely to be much higher than those found in the clay matrix. Henry hopes to put together a small field effort this summer to test ways of addressing the issue of getting a soil gas sample that is representative of what is under a structure.

Randy Breeden asked what Paul Eddinger says about the capabilities of his model. Henry indicated that it wasn't so much the model itself, but that it was full of assumptions such as breathing rate, ceiling height, flux in the room, how many cracks there are in the floor, no sumps, pipes, or electrical cables coming through the floor. Randy thought some of these could be addressed. Henry stated this was true, but the model has 40 different variables and it is not easy to get all of them correct.

UNIFIED STATISTICAL GUIDANCE

Randy Breeden stated that Region 8 had sent a letter to Elizabeth Cotsworth (Director, OSW) that they would be willing to finish the Unified Statistical Guidance and issue it as an EPA document. Randy indicated that OSW had notified the author that they were not going to complete the document. Randy

urged the Forum to go forward with a recommendation to Elizabeth Cotsworth that the document is valuable and needs to be completed.

Randy indicated aid that the document is about 80 percent complete. Except for a couple of areas of disagreement in the professional statistical community that will have to have policy decisions, the document is pretty much ready to go.

Kay asked how this document compared with the QA/G-9 Guidance for Data Quality Assessment. This document goes into far more detail not only in making interwell data comparisons but also in ways to handle non-normally distributed data. It is rather like a compendium of methods and is not for someone with a minimal knowledge of statistics. It is useful for the non-professional in so far as it provides a basis for asking questions. It only deals with ground-water sampling and is about 600 pages. Randy puts on and introductory and advanced course based on the methods in the text. Both are 3 days long.

TEGD
Vince reminded everyone that they should review the materials sent out so that an approach to revising the document can be discussed at the San Diego meeting.

OTHER
Mark Mercer mentioned the RCRA Groundwater Handbook is going to be out for a third review next week.

ATTENDEES

Bill Brandon, Region 1
Ray Cody, Region 1
Mike Nalipinski, Region 1
Ernie Waterman, Region 1
Kay Wischkaemper, Region 4
Dave Petrovski, Region 5
Luanne Vanderpool, Region 5
Vince Malott, Region 6
Bill Pedicino, Region 7
Jeff Johnson, Region 7
Randy Breeden, Region 8
Helen Dawson, Region 8
Kathy Baylor, Region 9
Rich Frietas, Region 9
Herb Levine, Region 9
Curt Black, Region 10
Howard Orlean, Region 10
Bernie Zavala, Region 10
Judy Canova, SC DHEC
Rob Hitzig, HQ/OERR
Ken Lovelace, HQ/OERR
Mark Mercer, HQ/OSW
Henry Schuver, HQ/OSW
Ken Brown, NERL Las Vegas
Jerry Jones, NRMRL-SPRD Ada
Dominic Digiulio, NRML-SPRD Ada
Bill Myers, EMS